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Two new species of the *Sapromyza obsoleta* Fallén species-group (Diptera, Lauxaniidae)

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Two new species of the *Sapromyza obsoleta* Fallén species-group (Diptera, Lauxaniidae). - The terminalia of both sexes of *Sapromyza obsoleta* Fallén, 1820, are illustrated for the first time. The study of specimens from Eastern Turkey and the Iberian Peninsula allowed discovery, description and illustration of two new species, *S. carlestolrai* sp. n. and *S. villosula* sp. n. The three species differ from each other in external characters and in the structure of the terminalia of both sexes. A key to the species of the *S. obsoleta* s. str. group is presented.

Keywords: Diptera - Lauxaniidae - *Sapromyza obsoleta* group - terminalia - new species - Western Palaearctic Region.

INTRODUCTION

Species of the family Lauxaniidae are usually abundant in moist environments, like on the vegetation in the undergrowth of deciduous forests, on bark of dead or old trees, or along creeks. Few species, however, prefer more dry and exposed habitats, like the borders of forests, isolated trees, or – even rarer (at least in Europe) – grassland (Merz, 2003a). Despite their often high population densities, most species are quite poorly known. Their distribution reflects more the collecting localities of entomologists than the reality, and immature stages are known only for few species. It is therefore not surprising that new species turn up regularly, even in comparatively well-studied areas, like the Western Palaearctic Region.

Recently, a new species of the *Sapromyza obsoleta* group was described from the Swiss Alps (*S. alpina* Merz), and a key to the species-group was provided (Merz, 2007a). This key was mostly based on external characters. Terminalia of both sexes were studied only for few species in detail. In particular, the terminalia of *Sapromyza obsoleta* Fallén, 1820, the type species of the genus, have so far never been illustrated, probably because of its unique external characters which allow a rather easy and quick identification, and because of its rarity in collections. Some time ago, the author received from Miguel Carles-Tolrá a female of *Sapromyza* from Spain which prompted a more careful study of the species-group. In addition, in two samples of Lauxaniidae from various parts of the Western Palaearctic Region, two apparently undescribed species from Eastern Turkey and the Iberian Peninsula belonging to the *S. obsoleta* s. str. group were detected. In order to resolve the taxonomy and nomenclature of this

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species-group, the available specimens were studied in detail and the descriptions of the two new species is presented here. A revised key to the species of the *S. obsoleta* s. str. group is provided which should help to recognize easily both new species.

MATERIAL AND METHODS

The specimens examined are deposited in the following collections:

MHNG Muséum d'histoire naturelle, Genève
NRS Naturhistoriska Riksmuseet, Stockholm, Sweden
ZSM Zoologische Staatssammlung München, Germany
CMCT private collection Miguel Carles-Tolrá, Barcelona, Spain

Terminology follows generally Merz (2007a) where the species-group is diagnosed and keyed, and where a key to the genera of the *Sapromyza* Fallén and *Lyciella* Collin groups is provided.

SYSTEMATIC PART

Sapromyza obsoleta s. str. species-group

The three Western Palaearctic species currently placed in this group in its narrow sense (see key below) can be recognized by the following combination of characters:

- General body colour yellow brown (plate A)
- Postpedicel black in apical half (figs 2, 17, 29)
- Palpus black in apical half (figs 1, 15, 28)
- Frons shining
- Anterior of suture with or without one strong dorsocentral seta, or with some distinctly longer setulae in addition to the 3 postsutural dorsocentral setae (figs 3, 30)
- Fore tarsus darker than fore tibia (plate A)
- Dorsal preapical seta on hind tibia absent or weak (figs 4, 5, 18, 32)
- Abdomnial tergites without paired black spots
- Male terminalia: surstylus with medially directed tooth (figs 8, 21, 35)

The group may be separated from the other species of the *S. obsoleta* s. lat. species-group as defined by Merz (2007a) by the apically black palpus, and the modified hind leg in the male (plate B). Currently, three species are placed in this group: *S. carlestolrai* sp. n., *S. obsoleta* Fallén and *S. villosula* sp.n. Excluded from this group is *S. alpina* Merz, 2007, a morphologically similar species (colouration, presence of a presutural dorsocentral seta) but it has a distinct dorsal preapical seta on the hind tibia and the male does not have a modified hind leg. It should be stressed, however, that this diagnosis is preliminary and the study of the terminalia of all species of *Sapromyza* may modify concept as it is presented here.

Sapromyza villosula sp. n. Figs 1-14, Plates A1, B1

MATERIAL: Holotype ♂; Turkey, Hakkari, Habur, Deresi-Tal, S. Beylsebap, 1200m, 26.VI.1985, W. Schacht (ZSM). – Paratypes; 3♂, 4♀, same data as holotype (MHNG, ZSM). The holotype is directly, slightly laterally pinned and is in good condition.

ETYMOLOGY: This species is named after the modified sternite 5 in the male (fig. 6).

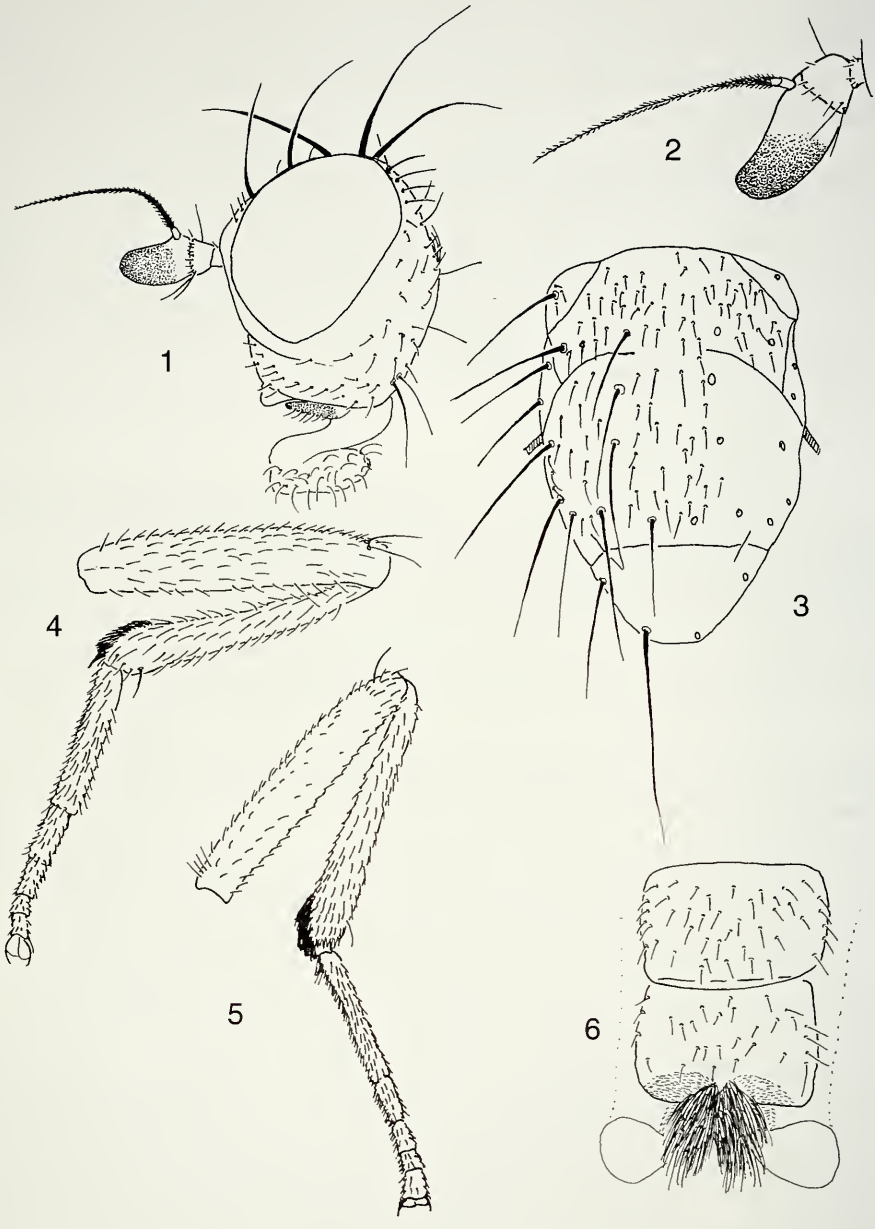
DIAGNOSIS: Yellow brown species with apical half of postpedicel and most of palpus contrastingly black (plate A1); frons shining; 1+3 strong dorsocentral setae; acrostichal setulae arranged in 4 irregular rows (fig. 3); wing hyaline; fore tarsus black but last tarsomere yellow brown; hind tibia with a short dorsal preapical seta (figs 4-5). Male: hind tibia apicoventrally with a dense brush of black setulae and a small black spine anteriorly (figs 4-5; plate B1); sternite 5 with a conspicuous brush of long, soft, black setulae medioposteriorly (fig. 6); epandrium (figs 7-8) wider than high; surstylus with a medially directed tooth; hypandrium and gonites forming a ring (figs 9-10). Female: genital segments a short retractible ovipositor; supra-anal plate and subanal plate isolated, densely setulose (figs 11-13).

DESCRIPTION MALE

Wing length: 3.8-4.2 mm (n=4).

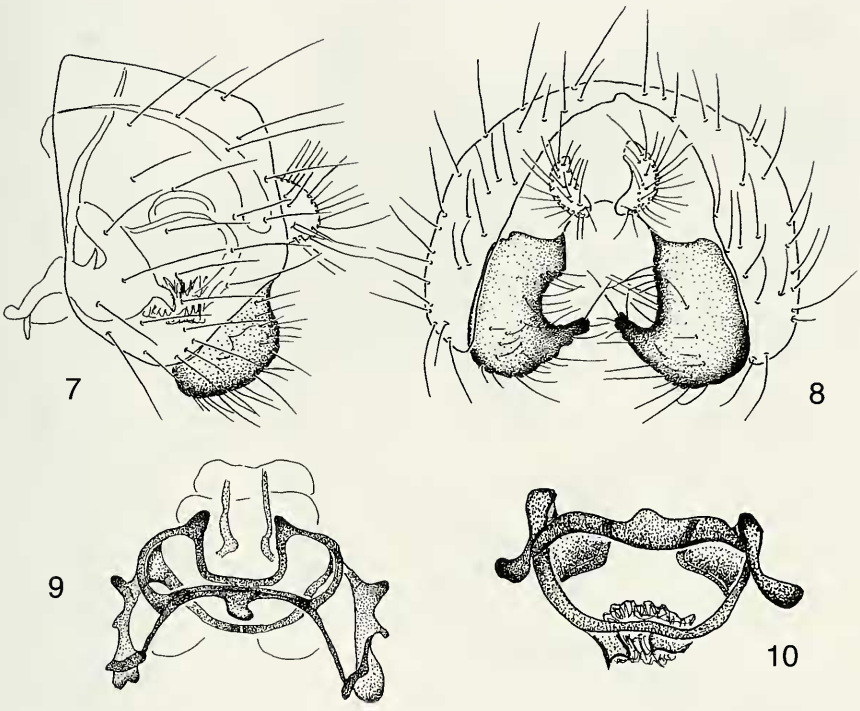
Head (figs 1-2): *Colouration* – Palpus and distal half of postpedical black, remaining parts including ocellar triangle and occiput yellow brown. Frons distinctly shining, other parts subshining or almost matte. Face pale yellow. Arista yellow at base, flagellum dark brown. *Structure* - In profile 1.2 times higher than long; occiput indistinctly convex, almost straight. Gena one quarter to one third as high as compound eye, about 1.25 times as high as height of postpedicel; along ventral margin with a row of few short, black setulae. Parafacial narrow, almost invisible in lateral view. Compound eye 1.1-1.2 times as high as long. Frons almost parallel-sided, about 1.25 times as wide as one eye, almost square, 1.05 times as wide as long (measured between posterior border of posterior ocelli and lunule), in anterior half with about 15 conspicuous, black setulae. Face slightly concave, without antennal grooves and without a carina. Lunule dorsally of antennal bases almost straight. *Antenna* – Scape almost entirely hidden below lunule, with an apical cercle of few black setulae. Pedicel in lateral view about 0.4 times as long as postpedicel, apically with a cercle of black setulae, ventrally with two stronger setulae, dorsally with one upright, strong setula. Postpedicel about twice as long as high, apically evenly rounded, dorsally almost straight, without a distinct dorso-apical tip. Arista short setulose, longest rays shorter than basal diameter of arista. *Mouthparts* – Clypeus, palpus and labellae not protruding in lateral view. Palpus apically and ventrally with few stiff, short, black setulae. *Chaetotaxy* – All setae and setulae black. 2 reclinate fronto-orbital setae; 1 long ocellar seta inserted inside triangle formed by the 3 ocelli, reaching anteriorly almost the lunule; 1 slightly inclinate medial vertical seta; 1 eclinate lateral vertical seta; 1 slightly inclinate postocellar seta which is about half as long as medial vertical seta; 1 row of postocular setae; occiput with unordered occipital setulae.

Thorax (fig. 3): *Colouration* – Shining yellow brown, but mesonotum slightly microtrichose, microtrichia not obscuring underlying cuticule. Postpronotal lobe and notopleuron pale yellow. *Structure* – Mesonotum in lateral view only slightly convex, almost flat; in dorsal view about 1.2 times as long as wide at level of wing bases. Scutellum at base about twice as wide as long. *Chaetotaxy* - All setae and setulae black. Acrostichal setulae in 4 more or less regular rows, some setulae on median two rows



FIGS 1-6

Sapromyza villosula sp. n., male. (1) Head, lateral view (holotype). (2) Antenna, lateral view (paratype). (3) Thorax, dorsal view (holotype, setae and setulae only drawn on left side). (4) Hind leg, anterior view (holotype). (5) Hind leg, posterior view (paratype). (6) Sternites 4 & 5 (paratype).



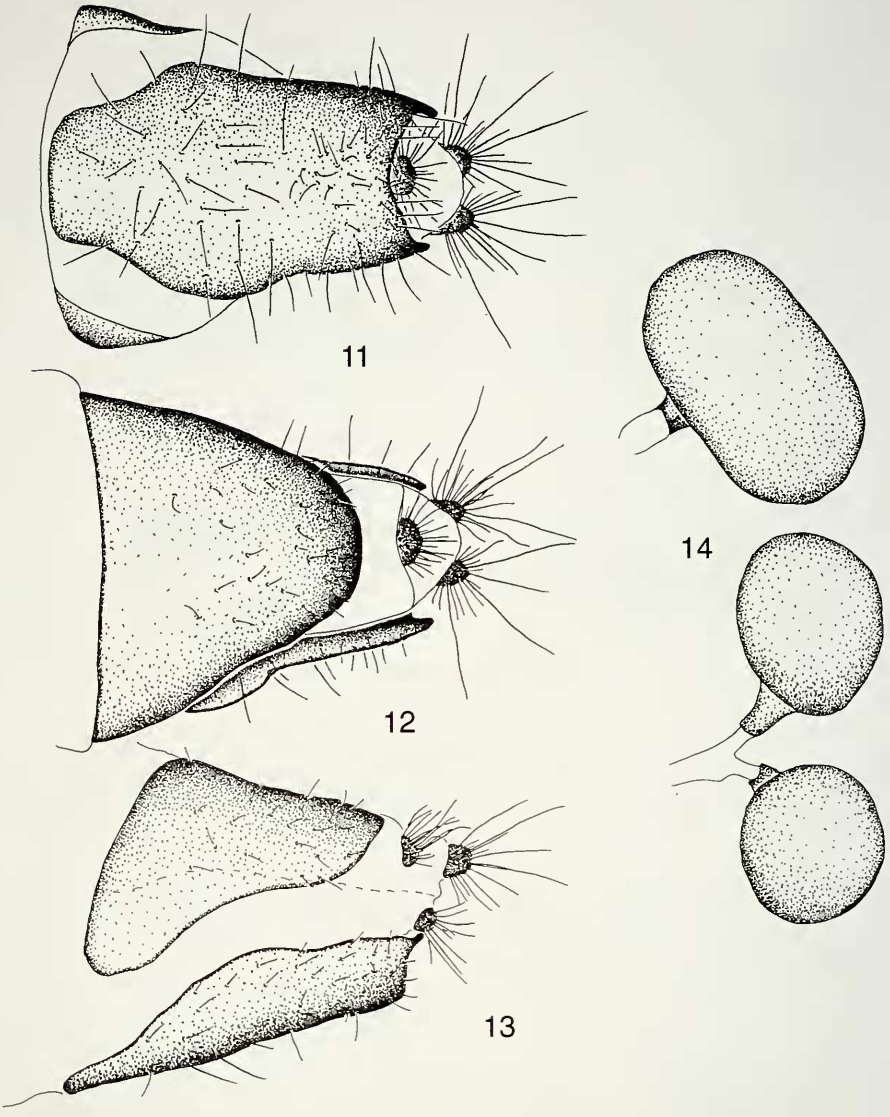
FIGS 7-10

Sapromyza villosula sp. n., male paratype. (7) Terminalia, lateral view (surstylus dotted). (8) Terminalia, posterior view (surstylus dotted). (9) Inner terminalia, anterior view. (10) Inner terminalia, dorsal view.

slightly longer; prescutellar acrostichal seta about as long as presutural dorsocentral seta; 1+3 distinct dorsocentral setae, the presutural seta over 3/4 length of anterior postsutural dorsocentral seta; sometimes a supernumerary seta on one side; 1 presutural intra-alar seta; 2 supra-alar setae; 1 postalar seta; no postsutural intra-alar seta; 1 postpronotal seta; 2 notopleural setae of subequal length; 2 (pairs of) scutellar setae of equal size; scutellum otherwise bare; 1 weak proepisternal seta; 1 anepisternal seta, anepisternum with some black setulae in posterior half; katepisternum with 2 setae and some black setulae ventrally; anepimeron bare; 1 (pair of) soft, weak prosternal setula.

Wing: Hyaline, with yellowish tinge; veins yellowish, bare; sapromyziform, row of black setulae on Costa ending halfway between R2+3 and R4+5; distance between R-M and DM-Cu on M1+2 slightly more than twice the length of DM-Cu and about two third as long as distance between DM-Cu and wing margin on M1+2.

Legs (figs 4-5): General colour yellow brown, but entire fore tarsus dark brown to black or last tarsomere yellow brown. Fore femur without ctenidium. Mid tibia apicoventrally with one strong and often a weak seta. Hind femur posterodorsally with 2 stronger, outstanding setulae. Fore and mid tibia with a strong, dorsal preapical seta. Hind tibia with a short, weak dorsal preapical seta which is sometimes almost indis-



FIGS 11-14

Sapromyza villosula sp. n., female paratype. (11) Terminal segments, ventral view. (12) Terminal segments, dorsal view. (13) Terminal segments, lateral view. (14) Spermathecae.

tinguishable from usual appressed setulae. Male hind tibia apicoventrally with a brush of black setulae; anteriorly with a short, black spine; hind basitarsus ventrally simply setulose, without brush of black setulae. Hind leg of female unmodified.

Male abdomen and terminalia (figs 6-10): Colouration as mesonotum, black setulose, setulae along posterior margin of tergites longer but not as long as

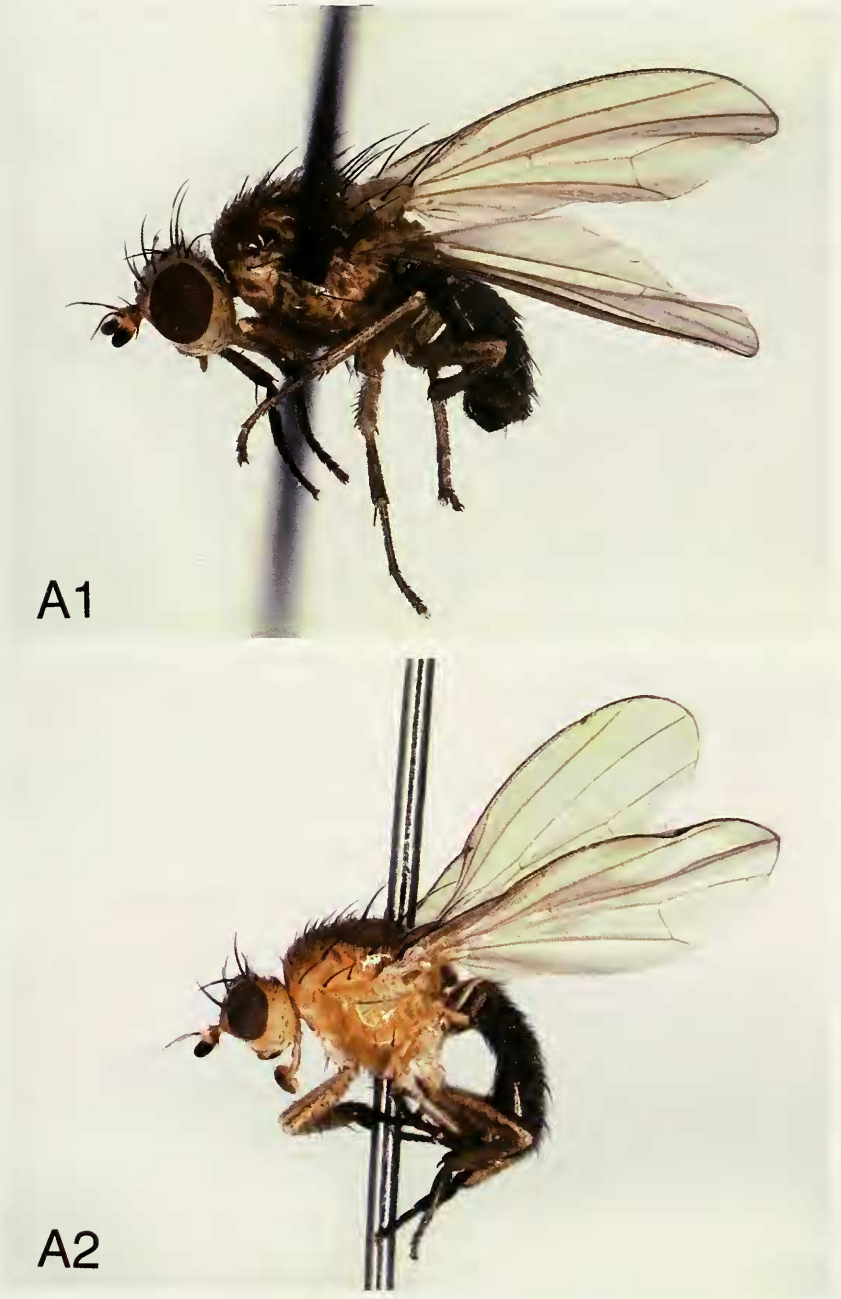


PLATE A

Sapromyza obsoleta s. str. group (male). Lateral view. (1) *S. villosula* sp. n. (holotype). (2) *S. obsoleta* (Germany).

corresponding tergite. Tergites without pairs of black spots. Sternite 5 (fig. 6) posteriorly in middle with a conspicuous, thick brush of long, black setulae. Epandrium in posterior view wider than high (fig. 8). Surstylus setulose, in lateral view (fig. 7) longer than high, in posterior view with a medially directed tooth. Cercus densely setulose, partly hidden in epandrium. Inner terminalia (figs 9-10) highly modified; hypandrium and gonites forming a ring in which the aedeagus is embedded; phallapodeme not developed; aedeagus a short, membranous tube.

DESCRIPTION FEMALE

Similar to male, but without the modified hind leg.

Wing length: 3.8-4.1 mm (n=4).

Female abdomen and terminalia (figs 11-14): Evenly setulose, setulae along posterior margin of tergites somewhat longer, but not as long as corresponding tergite. Sternites unmodified. Terminalia soft, retracted into preabdomen, not forming a sclerotized ovipositor. Tergite 8 (fig. 12) sparsely setulose, distally evenly rounded, shorter than corresponding sternite. Sternite 8 setulose on entire surface, elongated, latero-distally with a conspicuous tooth-like projection (figs 11 & 13). Supra-anal plate a small sclerite, strongly setulose. Subanal plate strongly setulose, small, in lateral view partly hidden by the tooth of sternite 8. One egg-shaped, large and a pair of smaller, sphaerical spermathecae of smooth surface present (fig. 14).

REMARKS: The male is unique among Western Palaearctic *Sapromyza* by the structure of its hind leg in combination with chaetotaxy and terminalia. The female is superficially similar to *S. obsoleta* and they can be safely separated from each other only by the study of the terminalia. The dorsal preapical seta on the hind tibia may be very short and almost undistinguishable from surrounding setulae in *S. villosula* as it is the case in *S. obsoleta*.

BIOLOGY: Nothing is known about the biology of the species.

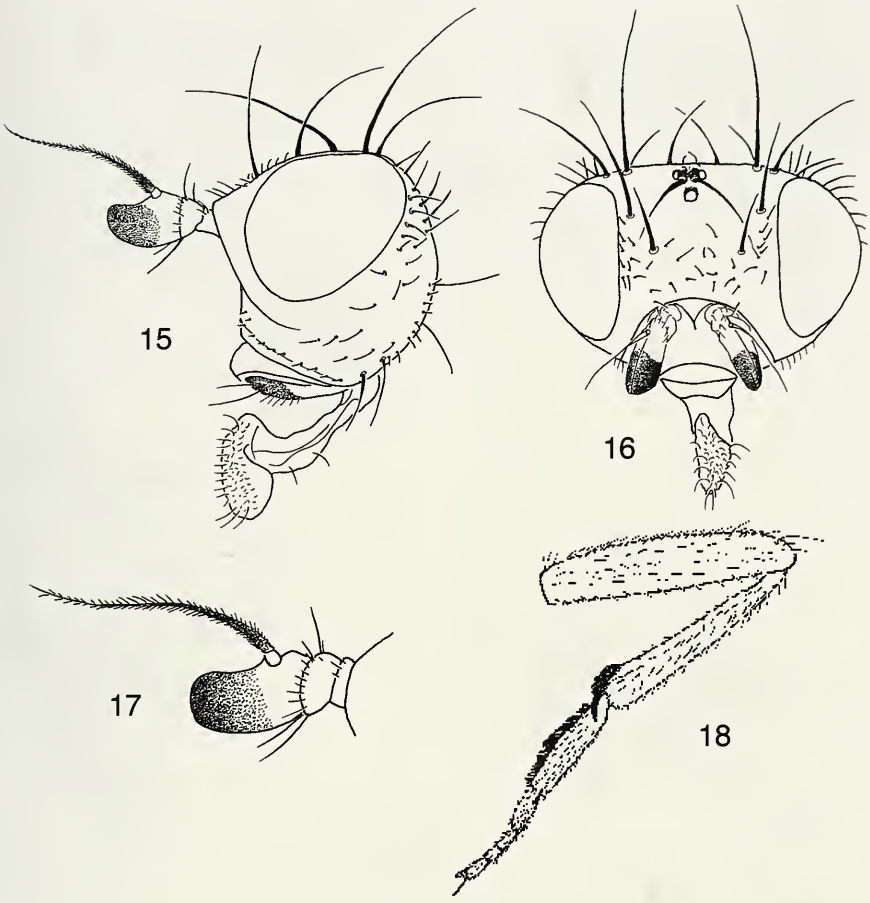
DISTRIBUTION: So far only known from the type series from SE Turkey.

Sapromyza obsoleta Fallén, 1820 Figs 15-27, Plates A2, B2

Sapromyza obsoleta Fallén, 1820: 31. Lectotype ♂ (designated by Merz, 2003b): Sweden, Skåne (? presumed, not stated) (NRS).

MATERIAL: 1♂; Germany, Mecklenburg-Vorpommern, Gross Polzin, NW Anklam, Sandhügel, 20m, 55.50N/13.36E, 14.VI.2003, C. Lange & J. Ziegler (MHNG). – 2♂; Greece, Macedonia, Apollonia, at Volvi Lake, relict forest and meadow, 60m, 40.39N/23.30E, 30.V.2002, E. Kameneva & V. A. Korneyev (MHNG). – 2♂; Greece, Macedonia, Horthiatis, 12km ENE Thessaloniki, 650-750m, 40.36N/23.06E, 28.V.2002, E. Kameneva & V. A. Korneyev (MHNG). – 1♂; Greece, Macedonia, Horthiatis, 12km ENE Thessaloniki, 650-900m, 40.36N/23.06E, 2.VI.2003, E. Kameneva & V. A. Korneyev (MHNG). – 1♂; Greece, Makedonia, Rendina, 6.V.1995, A. Orosz (MHNG). –1♂; Hungary, Kiskunsagi N. P., Ocsa, Madenica erdo, 5.VI.1979, L. Papp (MHNG). – 1♀; Hungary, Kiskunsagi N. P. Lakitelek, Toserdo, 6.VI.1979, L. Papp (MHNG). – 1♂ (lectotype), 4♀ (paralectotypes); Sweden, Skåne (?), Fallén (NRS). – 1♀; Switzerland, GE, Genthod, Frey-Gessner (MHNG).

DIAGNOSIS: This is the only known Western Palaearctic species of Sapromyza with the modified hind tibia and basitarsus in the male (fig. 18). It is easy to recognize by the strong spur anteriorly and the dense brush of black setulae ventrally at apex of

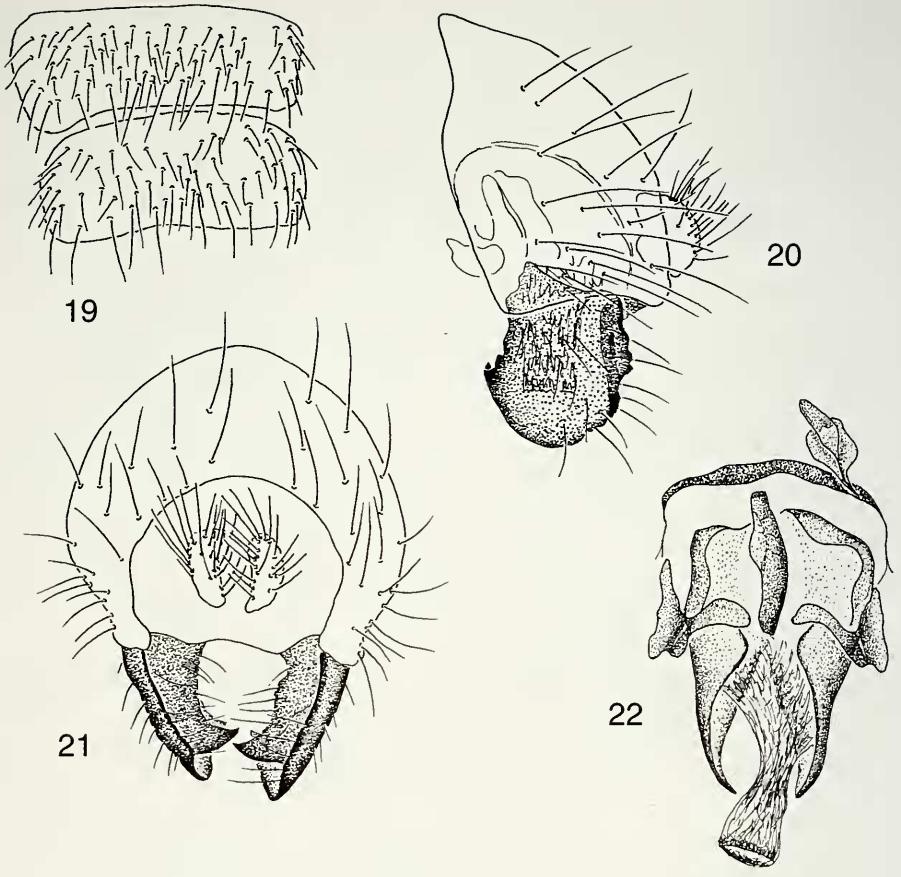


FIGS 15-18

Sapromyza obsoleta Fallén, 1820, male. (15) Head, lateral view (Germany). (16) Head, frontal view (Germany). (17) Antenna, lateral view (Germany). (18) Hind leg, posterior view (Hungary).

the hind tibia, and a long brush of black setulae along the entire ventral side of the hind basitarsus (Plate B2). The terminalia of both sexes are distinct and differ from all known Western Palaearctic Lauxaniidae (see description below).

DESCRIPTION OF MALE TERMINALIA: Sternites strongly black setulose, those on sternite 5 not stronger than on other sternites (fig. 19); epandrium (fig. 21) higher than wide, black setulose; surstylus (figs 20, 21) higher than wide in lateral view; of rather complicated shape, with a medially directed sclerotized plate which carries a medially directed tooth; in lateral view with a basally directed tooth; posteriorly with a slightly undulating border; cercus (figs 20, 21) strongly black setulose; inner terminalia (fig. 22): hypandrium basally closed, ventrally ending in two branches; phallapodeme short; pregonite of V-shape, strongly sclerotized; postgonite forming a sheath around

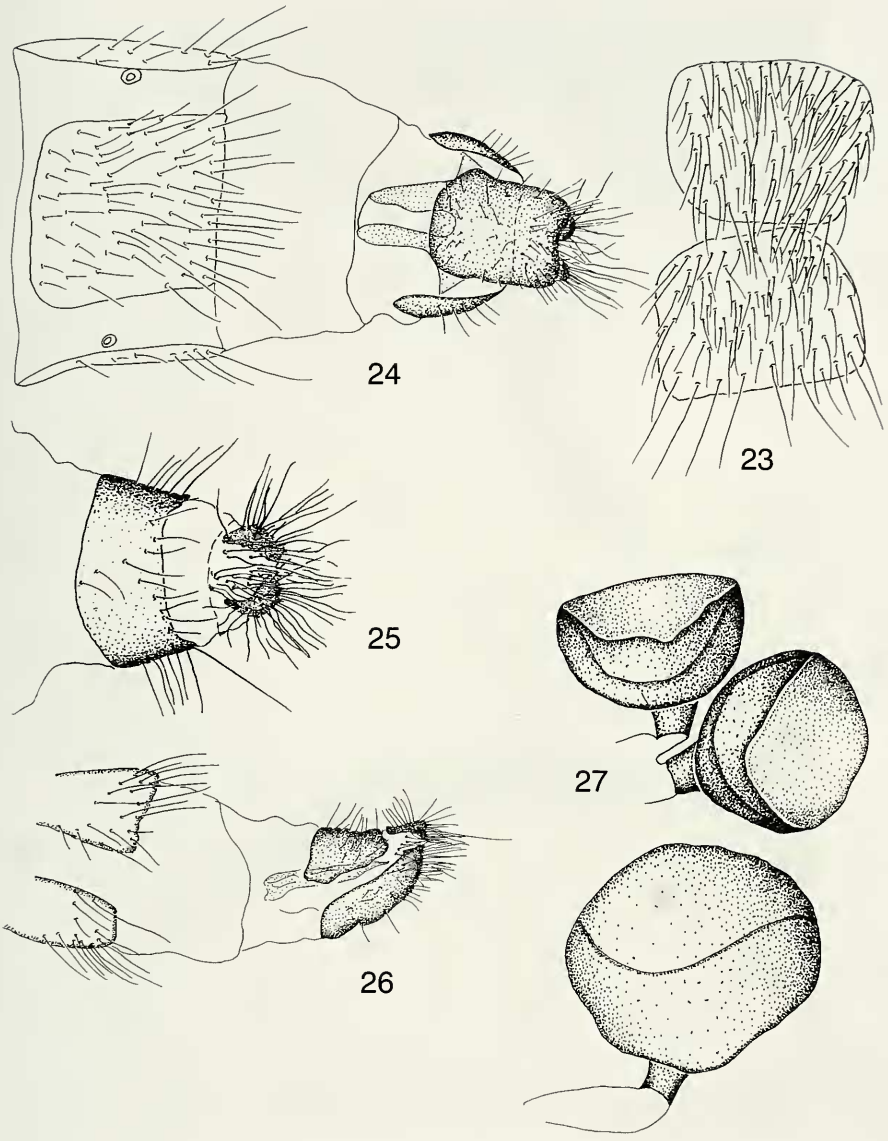


FIGS 19-22

Sapromyza obsoleta Fallén, 1820, male (Greece). (19) Sternites 4 & 5. (20) Terminalia, lateral view (surstylus dotted). (21) Terminalia, posterior view (surstylus dotted). (22) Inner terminalia, ventral view.

aedeagus, with two pointed tips posteriorly; aedeagus a membranous sack; ejaculatory apodeme sclerotized.

DESCRIPTION OF FEMALE TERMINALIA: Pregenital sternites (fig. 23) strongly black setulose, setulae of similar structure; segment 8 supra-anal plate and subanal plate forming a small ovipositor; tergite 8 (fig. 25) black setulose, extended laterally on ventral side; sternite 8 (fig. 24) rather square; supra-anal plate (figs 25, 26) wider than long, dorsally and laterally black setulose, folded on ventral side; subanal plate (figs 24, 26) longer than wide, apically stronger setulose than on surface, apical border not straight; inside ovipositor with a sclerite on level of supra-anal and subanal plates (figs 24, 26); cercus strongly black setulose, small and only little protruding; with strong setulae on membranous apical part between cerci; 3 sclerotized spermathecae (fig. 27) of smooth



FIGS 23-27

Sapromyza obsoleta Fallén, 1820, female (Switzerland). (23) Sternites 4 & 5. (24) Terminal segments, ventral view. (25) Terminal segments, dorsal view. (26) Terminal segments, lateral view. (27) Spermathecae.

surface present, the unpaired spermatheca larger than the paired ones. The 3 spermathecae are cup-shaped in the only dissected female. It is unknown whether this shape reflects the reality or whether they collapsed during preparation.

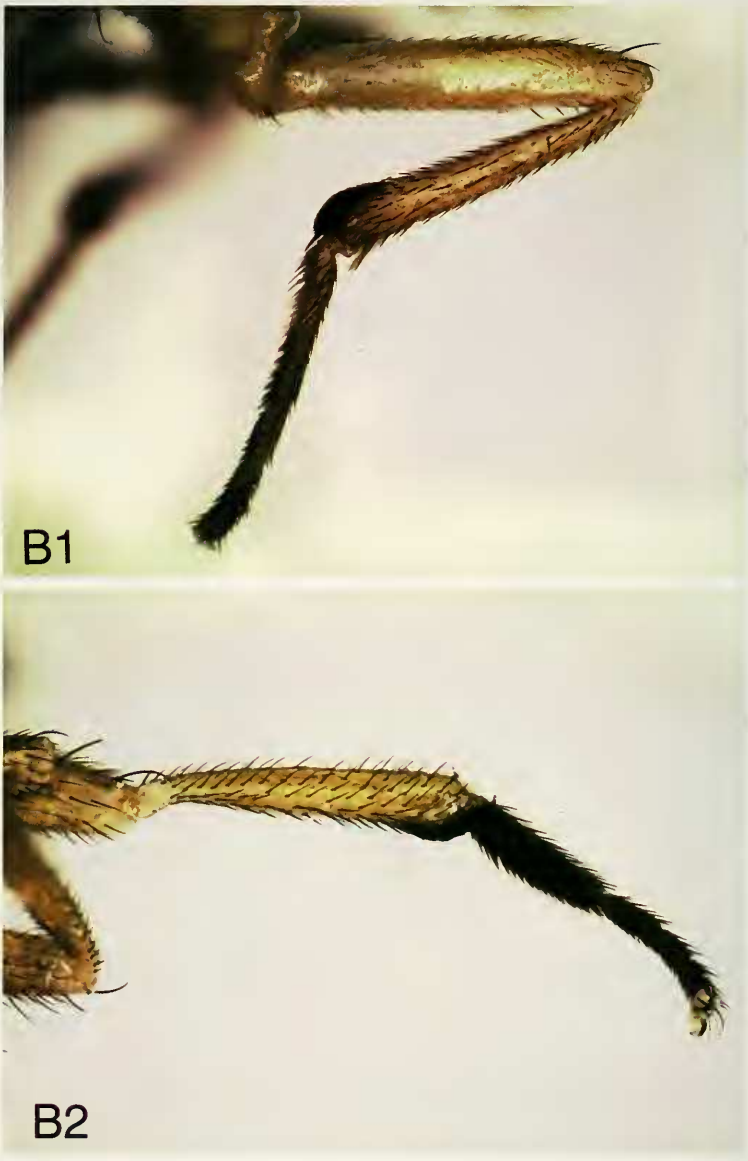


PLATE B

Sapromyza obsoleta s. str. group (male). Hind tibia and tarsus. (1) *S. villosula* sp. n. (paratype). (2) *S. obsoleta* (Greece).

REMARKS: In the key of Shatalkin (2000) the species runs to a group of 4 Palaearctic species which lack the preapical dorsal seta on the hind tibia (*S. ferganica* Shatalkin, *S. hissarica* Shatalkin, *S. obsoleta*, *S. simplicipes* Czerny). Although no specimens of the 3 other species (known so far from Middle Asia only) could be

studied it is obvious from the illustrations and characters given in the key that *S. obsoleta* differs from them by the above mentioned diagnosis.

BIOLOGY: The species seems to have a preference for sandy soil in North and Central Europe as it was collected on a sandy hill in Germany and in a large sanddune area in Hungary. The ecological range is larger in South Europe as it was collected in forests and in meadows. Immature stages, however, are unknown and its apparant rarity in collections does not allow to give more precise information about its biology.

DISTRIBUTION: This Western Palaearctic species is recorded from the following countries (Merz, 2007b): Austria, Belgium, Czech Republic, Denmark, Finland, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Poland, Slovakia, Sweden, Switzerland, "Yougoslavia". Shatalkin (2000) recorded the species from "Turkey" without further information.

Sapromyza carlestolrai sp. n. Figs 28-39, Plate C1-4

MATERIAL: Holotype ♂; Portugal, 7 km E of Manteitgas, nr. river, 580m, sweeping, 40.24.42N/7.28.04W, Barták M., 23.V.2008 (MHNG). – Paratype ♀; same data as holotype (MHNG). – 1♀; Spain, Salamanca, Villar de la Yegua, Vado de la Vina (E: Salamanca), Gelbschalen [= in yellow pans], in Alkohol, 40.44N/06.42W, 6.-9.VI.2003, Tschorsnig (CMCT).

The holotype is larterally glued on a cardpoint and is in good condition (medial vertical setae absent or broken). The abdomen was removed and it is stored with the terminalia dissected in a glass tube in glycerol on the same pin.

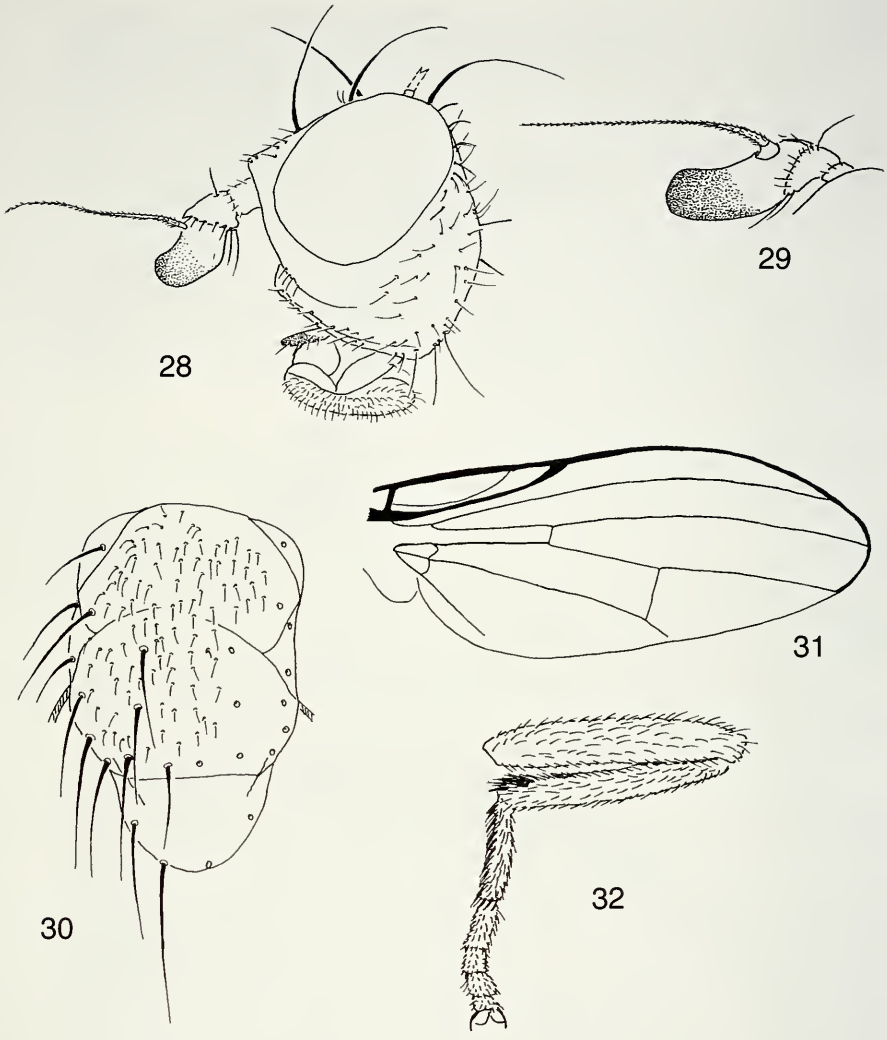
ETYMOLOGY: Named in honour of Miguel Carles-Tolrá, Barcelona, one of the rare specialists of the family Lauxaniidae, who was stimulating this study, and in recognition of his efforts for the progress of dipterology in Europe.

DIAGNOSIS: Yellow brown species with apical half of postpedicel and palpus contrastingly black (plate C1); frons shining; thorax (fig. 30) with 0+3 dorsocentral setae, but without longer setulae anterior of suture; acrostichal setulae arranged in 4 more or less regular rows; wing (fig. 31) hyaline; fore tarsus black but last tarsomere yellow brown; hind tibia without a dorsal preapical seta. Male: hind tibia (fig. 32, plate C2) at tip with a short, black, anteroventral spine; hind basitarsus ventrally with a loose brush of black setulae; terminalia (plate C3) with sternite 5 (fig. 33) unmodified; small papillose sternite 6 present; surstylus in lateral view (fig. 34) arched; in ventral view (fig. 35) distinctly concave apically; postgonites asymmetrical (fig. 36). Female (figs 37-39, plate C4): tergite 7 and sternite 7 fused to form a short, heavily sclerotized ovipositor; sternite 8 a rigid plate, medially with a longitudinal keel, apically distinctly concave, lateroapically extended into a small tooth; supra-anal and subanal plates small, densely setulose.

DESCRIPTION MALE

Wing length: 4.35 mm (n=1).

Head (figs 28-29): *Colouration* – Most of palpus and distal half of postpedicel black, remaining parts including ocellar triangle and occiput yellow brown. Frons shining, other parts subshining or almost matte. Face pale yellow. Arista yellow at base, flagellum dark brown. *Structure* – In profile 1.2 times higher than long; occiput indistinctly convex, almost straight. Gena almost half as high as compound eye, about 1.4



FIGS 28-32

Sapromyza carlestolrai sp. n. male holotype. (28) Head, lateral view. (29) Antenna, lateral view. (30) Thorax, dorsal view (setulae omitted on one side). (31) Wing, drawn in situ. (32) Hind leg, anterior view.

times as high as height of postpedicel, along its ventral margin with a row of fine black setulae, near vibrissal corner with few additional setulae. Parafacial over half as long as height of postpedicel. Compound eye 1.1 times as high as long. Frons more or less parallel-sided, about 1.25 times wider than long, and about 1.6 times as wide as compound eye; in anterior half with about 30 black setulae. Face indistinctly concave, without antennal grooves and without a distinct carina. Lunule dorsally of antennal bases almost straight. *Antenna* – Scape only slightly projecting in lateral view, apically

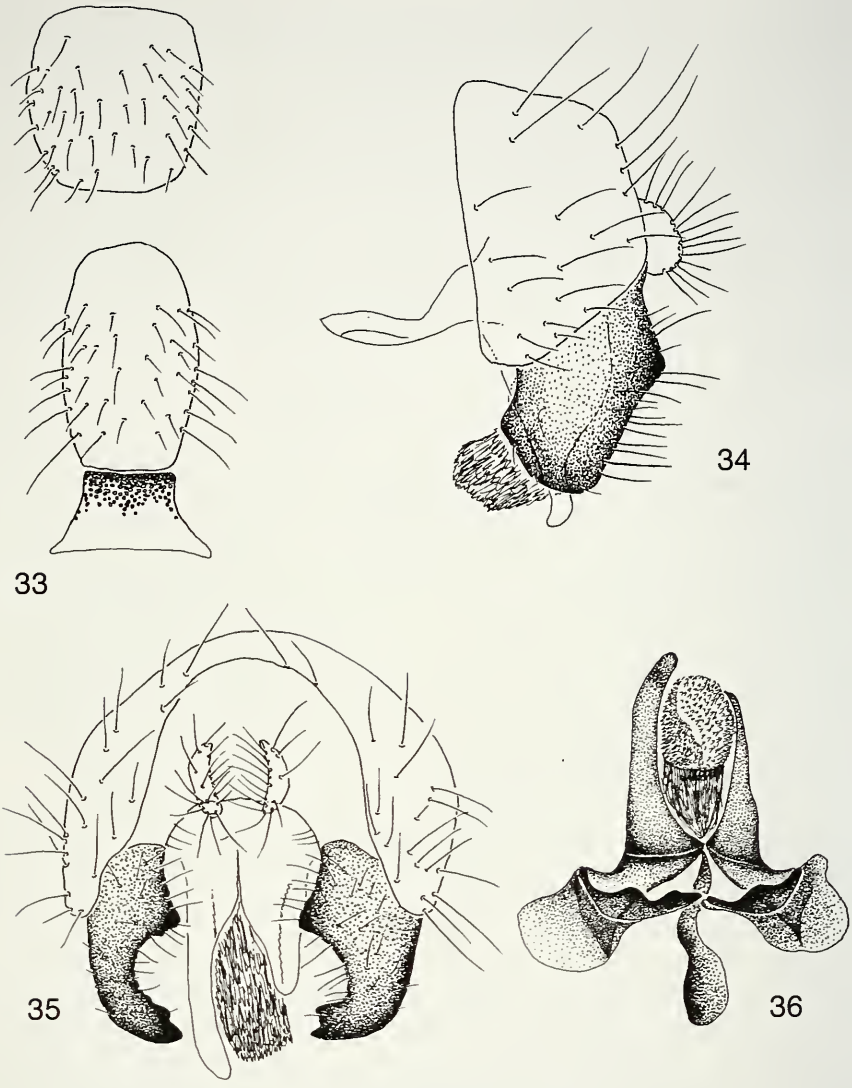
with some black setulae. Pedicel about half as long as postpedicel, apically with a row of black setulae, dorsally with one long, upright setula, ventrally with 3 longer setulae. Postpedicel about twice as long as high, apically evenly rounded, dorsally almost straight, without a distinct dorso-apical tip. Arista short setulose, longest rays shorter than basal diameter of arista. *Mouthparts* – Clypeus, palpus and labellae in lateral view in almost one line with face. Palpus apically and ventrally with few stiff, black setulae. *Chaetotaxy* – All setae and setulae black. 2 reclinate fronto-orbital setae; 1 long ocellar seta inserted inside triangle formed by the 3 ocelli, reaching anteriorly almost the lunule; medial vertical seta long, probably inclinate (one absent, the other broken); lateral vertical seta eclinate; 1 distinctly inclinate postocellar seta which is about half as long as lateral vertical seta; 1 row of postocular setae; occiput with unordered occipital setulae.

Thorax (fig. 30, plate C1): *Colouration* – Shining yellow brown, but postpronotum, notopleuron and dorsal half of pleurae pale yellow. *Structure* – Mesonotum in lateral view only slightly convex, almost flat; in dorsal view about 1.1 times as long as wide at level of wing bases. Scutellum at base about twice as wide as long. *Chaetotaxy* – All setae and setulae black. Acrostichal setulae in 4 more or less regular rows; prescutellar acrostichal seta about two third as long as posteriormost dorsocentral seta; 0+3 dorsocentral setae, no longer setulae on line of dorsocentral setae anterior suture; 1 presutural intra-alar seta; 2 supra-alar setae; 1 postalar seta; no postsutural intra-alar seta; 1 postpronotal seta; 2 notopleural setae, the posterior about two third as long as anterior notopleural seta; 2 (pairs of) scutellar setae of subequal length; 1 proepisternal seta; 1 anepisternal seta, anepisternum with some black setulae in posterior half; 2 katepisternal setae, katepisternum covered with some black setulae; anepimeron bare; 1 tiny, weak prosternal setula.

Wing (fig. 31): Hyaline, with yellowish tinge; veins yellowish, bare; sapromyziform, row of black setulae on Costa ending halfway between R2+3 and R4+5; Costa reaching M1+2; distance between R-M and DM-Cu on M1+2 about twice as long as length of DM-Cu and about 0.6 times as long as distance between DM-Cu and wing margin on M1+2.

Legs (fig. 32, plate C2): General colour yellow brown, but fore tarsus dark brown to black with last tarsomere yellow brown. Fore femur without ctenidium. Fore and mid tibia with a strong dorsal preapical seta; hind tibia without dorsal preapical seta. Mid tibia apicoventrally with a strong seta. Hind femur with one outstanding posterodorsal seta near apex. Hind tibia apicoventrally with a short, black spine. Hind tarsus with a rather indistinct row of black setulae ventrally which do not form a conspicuous brush.

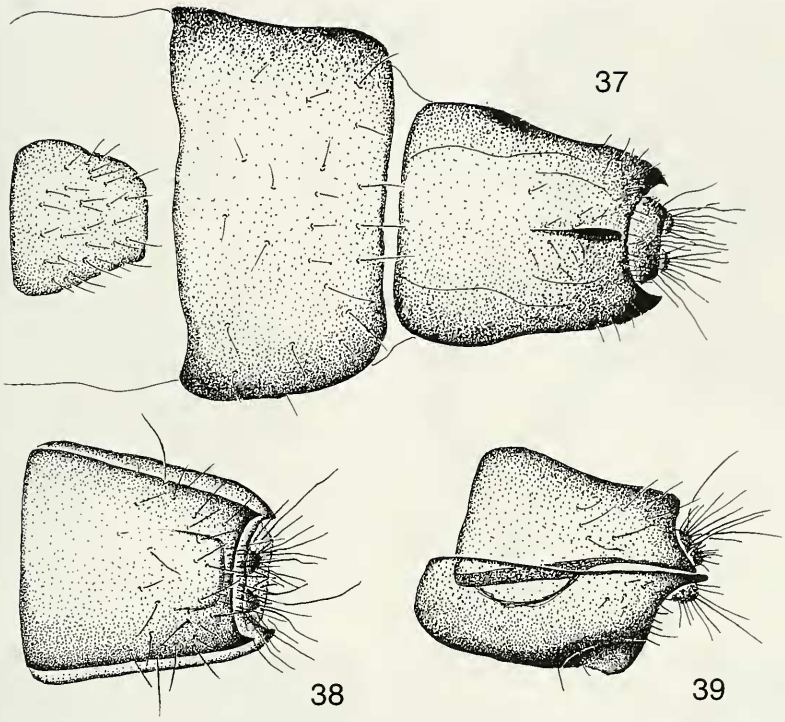
Male abdomen and terminalia (figs 33-36, plate C3): Colouration as mesonotum, black setulose, setulae along posterior margin of tergites longer but not as long as tergite on which they are inserted. Tergites without pairs of black spots. Sternite 5 unmodified; distally with a small sclerotized plate which is covered at base with numerous papillae (sternite 6?). Epandrium in lateral view slightly higher than long, in posterior view about as high as wide. Surstylus setulose, in lateral view arched, slightly longer than wide; in posterior view basally with a medially directed tooth; at tip with a distally concave, medially-directed, finger-like protuberance. Hypandrium open



FIGS 33-36

Sapromyza carlestolrai sp. n. male holotype. (33) Sternites 4-6. (34) Terminalia, lateral view (surstylus dotted). (35) Terminalia, posterior view (surstylus dotted). (36) Inner terminalia, anterior view.

anteriorly, fused with postgonites posteriorly. Pregonite absent (?).Two finger-like, asymmetrical (or broken on one side?) postgonites forming a sheath for the aedeagus. The latter a membranous tube with is apically densely covered with small papillae. Phallapodeme well developed, almost as long as postgonite.



FIGS 37-39

Sapromyza carlestolrai sp. n. female paratype. (37) Terminal segments, ventral view. (38) Terminal segments, dorsal view. (39) Terminal segments, lateral view.

DESCRIPTION FEMALE

Similar to male, differing in the entirely unmodified hind leg and the structure of the terminalia.

Wing length: 4.6-4.75 mm (n=2).

Female abdomen and terminalia (figs 37-39, plate C4) Setulae along posterior margin of tergites shorter than in male. Pregenital sternites unmodified, simply setulose. Tergite 7 and sternite 7 fused to a short ring, forming an ovipositor which cannot be retracted in preabdomen. Sternite 8 a strongly sclerotized plate, apically distinctly concave, lateroapically extended into a short tooth; medially in posterior half with a prominent keel which is apically elevated. Tergite 8 forming an apically setulose plate which is slightly longer than wide, but shorter than corresponding sternite; apically almost straight, lateroapically with a small tooth; Supra-anal and subanal plates small, strongly setulose, partly hidden under tergite 8 and sternite 8. Spermathecae not visible (dissected abdomen filled with dirt).

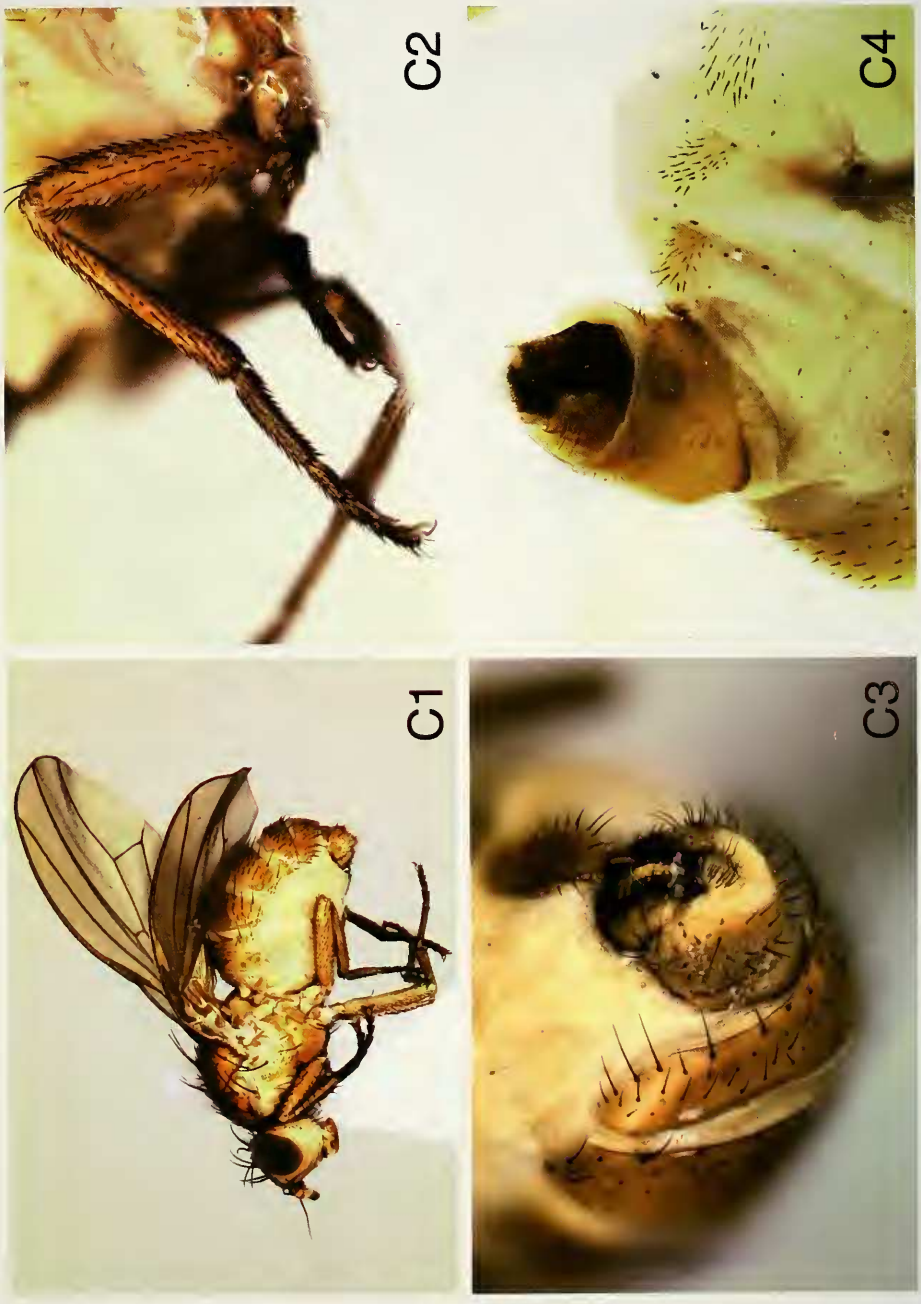


PLATE C

Sapromyza carlestolrai sp. n. (holotype and paratype from Portugal). (1) lateral view (male holotype). (2) hind leg (male holotype). (3) Externally visible terminalia (male holotype). (4) same (female paratype).

KEY TO MALES OF THE WESTERN PALAEARCTIC SPEICES OF THE *SAPROMYZA OBSOLETA* S. STR. SPECIES GROUP

Characters given in brackets at the end of each section apply to all species of the couplet but they may also be present in some species of the other couplet.

1a Dorsal preapical seta on hind tibia absent or weak, almost indistinguishable from other setulae (yellow brown species, but apical half of postpedicel, most of palpus and anterior tarsus except for last tarsal segment contrastingly dark brown to black; frons shining; gena higher than height of postpedicel; abdomen without paired black spots on last tergites) (*Sapromyza obsoleta* s. str. group) 2

1b Dorsal preapical seta well developed on all three tibiae . . . . . other species of *Sapromyza* (see Merz, 2007a)

2a Hind tibia apicoventrally with a brush of black setulae and apically with a curved, long, black spine anteriorly; hind basitarsus ventrally along entire length with a brush of black setulae (anterior of suture with some longer setulae on line of dorsocentral setae) . *Sapromyza obsoleta* Fallén, 1820

2b Hind basitarsus ventrally without distinct brush of black setulae; hind tibia anteriorly at apex without long, outstanding black spine 3

3a Hind tibia (figs 4-5) with a distinct brush of black setulae apicoventrally; dorsal preapical seta weak, sometimes barely longer than other setulae; 1+3 distinct dorsocentral setae; sternite 5 posteromedially with a brush of black setulae (fig. 6) . . . . . *Sapromyza villosula* sp. n.

3b Hind tibia (fig. 32) without brush of black setulae apicoventrally, but with a small, black spine; dorsal preapical seta absent; 0+3 dorsocentral setae, anterior of suture without longer setulae; sternite 5 unmodified . . . . . *Sapromyza carlestolrai* sp. n.

KEY TO FEMALES OF THE WESTERN PALAEARCTIC SPEICES OF THE *SAPROMYZA OBSOLETA* S. STR. SPECIES GROUP

Characters given in brackets at the end of each section apply to all species of the couplet but they may also be present in some species of the other couplet.

1a Dorsal preapical seta on hind tibia absent or weak, almost indistinguishable from other setulae (yellow brown species, but apical half of postpedicel, most of palpus and anterior tarsus except for last tarsal segment contrastingly dark brown to black; frons shining; gena higher than height of postpedicel; abdomen without paired black spots on last tergites) (*Sapromyza obsoleta* s. str. group) 2

1b Dorsal preapical seta well developed on all three tibiae . . . . . other species of *Sapromyza* (see Merz, 2007a)

2a 1+3 strong dorsocentral setae present; dorsal preapical seta on hind tibia short and weak, sometimes barely longer than surrounding setulae . . . . . *Sapromyza villosula* sp. n.

2b Without strong dorsocentral seta anterior of suture, either some longer setulae present or without any prominent setulae at all; hind tibia without dorsal preapical seta 3

3a Anterior of suture with 1-3 stronger setulae on line of dorsocentral setae; sternite 8 and tergite 8 of abdomen forming a fused ovipositor; subanal plate distinct ..... *Sapromyza obsoleta* Fallén, 1820

3b Anterior of suture without any longer setulae on line of dorsocentral setae; abdomen with a short rigid ovipositor formed by fused tergite 7 and sternite 7 which cannot be retracted in preabdomen; sternite 8 a strongly sclerotized plate, apically concave, laterally divided into two teeth; medially with a keel; subanal plate small, partly hidden under sternite 8 ..... *Sapromyza carlestolrai* sp. n.

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